HESPERIID BUTTERFLIES FROM SOUTH VIETNAM (3)

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In this part and the following ones we will treat the subfamily Hesperiinae, to which the most of our hesperiid materials belong. Southeast Asian Hesperiinae was divided into many generic groups by Evans (1949) based upon the wing venation, shape and relative length of antennae, shape of palpi, and the structure of legs. On the arrangement of the genera, we will mainly follow Evans' system.

a) *Isoteinon* Group.

In 1937 Evans included the genus *Astictopterus* in the *Isoteinon* Group, but later he separated it from this group and conjoined it with the genus *Halpe* and its allies establishing the *Astictopterus* Group in his Catalogue of the Hesperiidae of Europe, Asia and Australia (1949). Judging from the close resemblance of the male genitalia between *Astictopterus jama* Felder, 1860 and the *Isoteinon* species, we consider *Astictopterus* is much more closely related to the *Isoteinon* Group than to *Halpe* and its allies, so we replace this genus in the *Isoteinon* Group.

In our collection only one species, *Astictopterus jama olivascens* Moore, 1878 belongs to this group.

26. ***Astictopterus jama olivascens*** Moore, 1878 (Figs. 65–66 ♂, 67–68 ♀; Textfig. 19, ♂ genitalia)

Specimens examined : 1♀, Trang Bom, 7-Aug.-1960; 1♀, Trang Bom, 14-Aug.-1960; 1♂, Trang Bom, 21-Aug.-1960; 1♀, Trang Bom, 17-Sep.-1960; 1♀, Trang Bom, 9-Oct.-1960; 1♂, Trang Bom, 16-Oct.-1960; 1♂, Trang Bom, 4-Dec.-1960; 1♂, Trang Bom, 2-July-1961; 2♀♀, Blao, 16-July-1961; 1♂, Djiring, 30-July-1961; 2♂♂ 1♀, Trang Bom, 10-Sep.-1961; 1♂, Trang Bom, 5-Nov.-1961; 1♂, Trang Bom, 12-Nov.-1961; 1♂, Trang Bom, 1-Jan. 1962; 1♀, Trang Bom, 7-Jan.-1962; 1♂, Trang Bom, 10-Jan. 1962; 1♀, Ben Nom, 4-Mar.-1962; 1♂ 1♀, Trang Bom, 8-Apr.-1962; 1♂, Trang Bom, 15-Apr.-1962; 1♂, Trang Bom, 12-May-1962; 2♀♀, Trang Bom, 8-July-1962; 2♂♂, Trang Bom, 15-July-1962; 1♂, Trang Bom, 12-Aug.-1962; 1♀, Col de Blao, 26-Aug.-1962; 1♀, Trang Bom, 9-Sep.-1962.

Evans (1949) pointed out that this species had two seasonal forms; differences are seen in the markings of the forewing, which has two apical hyaline white spots in the dry-season form, while in the wet-season form it is almost unmarked brown, except for subspecies *olivascens*, in which the female sometimes has the apical spots even in the wet-season form. The nominate subspecies known from Malaya, Sumatra and Java is represented by the wet-season form only, though the other two subspecies, *chinensis* and *olivascens*, are seasonally dimorphic.

Most of our specimens of this species are unicoloured dark brown irrespective of season as in the nominate race, but two females captured in January and April show the apical spots.

Male genitalia : Dorsum large, tegumen broad, with shallow incision on anterior margin; fenestrula completely sclerotized and fused with tegumen and scaphium; the latter small and slender,

1) 30, Hamaguchi-Naka-Itchômé, Sumiyoshi-ku, Osaka
2) 9, Ebisu-Honmachi Nichômé, Naniwa-ku, Osaka

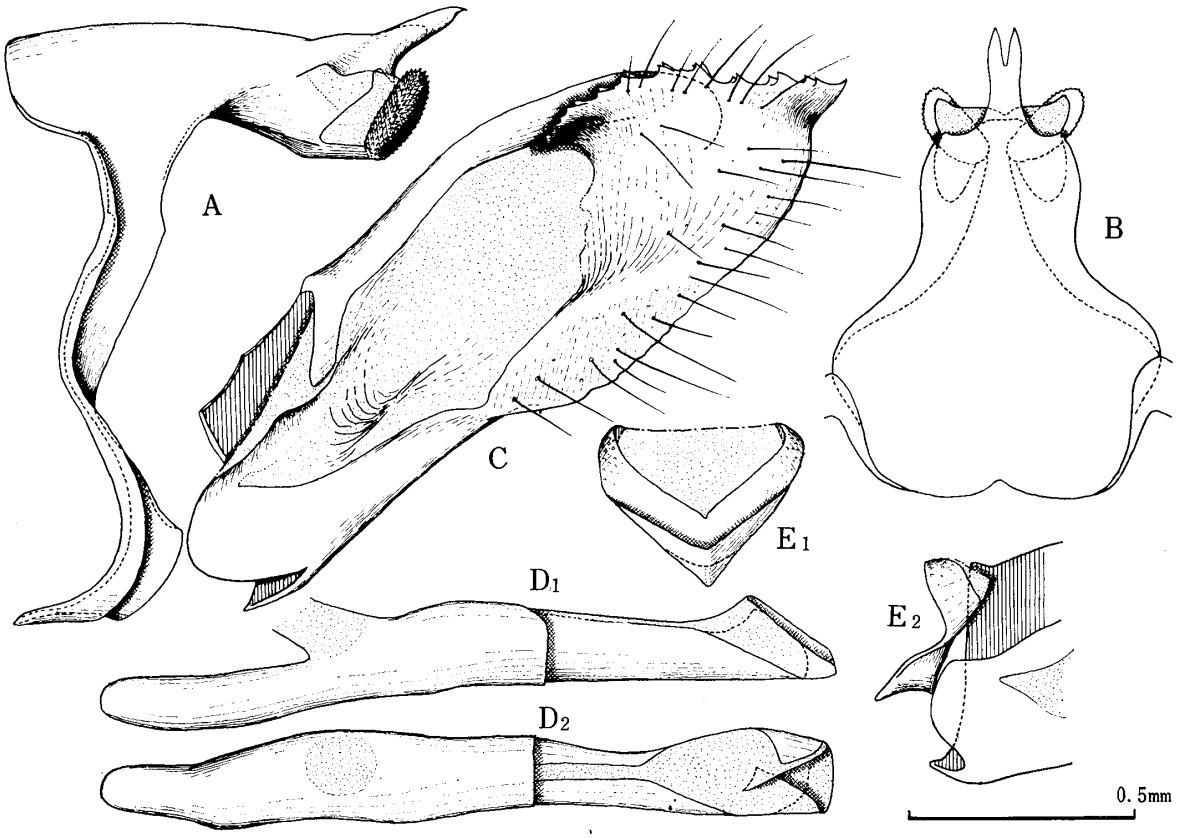

Fig. 19. Male genitalia of *Astictopterus jama olivascens* Moore.
A: Lateral aspect of ring; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva; D_1: Lateral aspect of phallus; D_2: Dorsal aspect of phallus; E_1: Posterior aspect of juxta; E_2: Lateral aspect of juxta.

short-bifurcate at tip; gnathos separated at cochlear, with its basal portion broad and fused with tegumen, apical portion slender, but dilated at the well-marked heavily serrate cochlear. Valvae large, more or less dilated on apical half; costa narrow, not sharply separated from ampulla, but with a basal extension towards sacculus; ampulla broad, only very slightly arched above, rounded at tip; harpe large, strongly produced apically into the pointed tip, with dorsal margin furnished with a double row of prominent serrations, but never projecting above beyond the level of ampulla; sacculus rather broad, with its base dilated. Phallus long, subzonal portion a little longer than suprazonal one; coecum long, vesical opening oblique to aedeagus, of which suprazonal portion has a narrow dorsal membranous band extending to zone. Juxta V-shaped, the dorsal extremities bluntly ended.

In comparison with the species of the *Halpe* Group, this has slenderer body and much broad wings, and rather resembles some feeble skippers such as *Heteropterus morpheus* (Pallas, 1771), *Isoteinon lamprospilus* Felder, 1862, etc. Its male genitalia also differ from those of the *Halpe* Group, especially in the structure of dorsum, which is fundamentally same as that of the *Isoteinon* species, and much dissimilar to those of the *Halpe* Group.

This species is widely distributed from South China, Assam, Sikkim, Bhutan, through Indo-China Peninsula to Malaya, the Andammans, Sumatra and Java, and is separated into 3 subspecies mentioned above.

b) *Halpe* Group.

This rather homogeneous large group consists of many closely allied species, which are small- or medium-sized, and have the similar male genitalia, porrect second segment of palpi, and the characteristic sexual stigma on the male wings.

There is a remarkable similarity in the male genital structure throughout the group, as follows:

1) Dorsum flattened, apex of uncus more or less bilobed.

2) Tegumen bearing a pair of lamellate expansions or arm-like processes on hind margin. In the genus *Ochus* or in some species of the other genera, these extensions may be rudimentary.

3) Sclerotized fenestrula very broad, having a broad membranous area at the middle.

4) Gnathos well developed and broad; in many genera except *Halpe* gnathos having apical portion extending posteriorly, forming a well-developed cochlear, while in *Halpe* it being flattened, and cochlear not sharply separated from basal portions.

5) Valvae frequently asymmetrical; harpe large with dorsal margin strongly serrate or dentate, and having a tendency to produce two serrate dorsal processes from the anterior and posterior corners respectively; often extending dorsad of phallus forming a kind of transtilla, which is heavily denticulate in many species.

6) Suprazonal portion of aedeagus dorsally membranous, vesica usually without cornutus, but rarely with well-developed, serrate, lamellate one.

7) Juxta ill developed and small, usually bearing a pair of weakly sclerotized pieces on anellus; these pieces are, in some cases, connected or articulated with the dorsal extremities of juxta.

The *Halpe* Group is represented by 9 species comprising 6 genera in our collection, although Evans (1949) listed 18 species from Indo-China including Tonkin, and Métaye recorded 7 species.

27. ***Arnetta atkinsoni*** (Moore, 1878) (Figs. 73-74, ♂; Textfig. 20, ♂ genitalia)

Specimens examined: 1♂, Blao, 16-July-1961; 1♂, Blao, 5-May-1962; 1♂, Blao, 7-Oct.-1962.

Upperside dark brown, with the following white dots on forewing: each apical dot in spaces 6 to 8, large discal dot in space 3, minute one in space 2 may be absent, and a conspicuous cell spot.

Underside of hindwing covered with ochreous scales on discal and tornal areas; one of our specimens almost unmarked, while other specimens having the following white dots: two spots in space 1b, single spot in spaces 2, 3 and 5 respectively, and a cell spot. Forewing vein 1b acutely bisinuate near the middle, where a tuft of black hairs appearing on underside.

Male genitalia: Dorsum large; tegumen broad, half as long as dorsum, with its anterior margin weakly incised, with its lateral margin bearing weak expansions which cover the basal portion of sclerotized fenestrula; the latter broad but largely membranous dorsally; scaphium flattened, produced into a pair of short divergent uncal processes; gnathos separated laterally; the base connected with sclerotized fenestrula, the apex protruding posteriorly and ending in a cochlear which does not exceed the tip of uncus. Valvae large and broad, widest preapically; costa narrow, ampulla

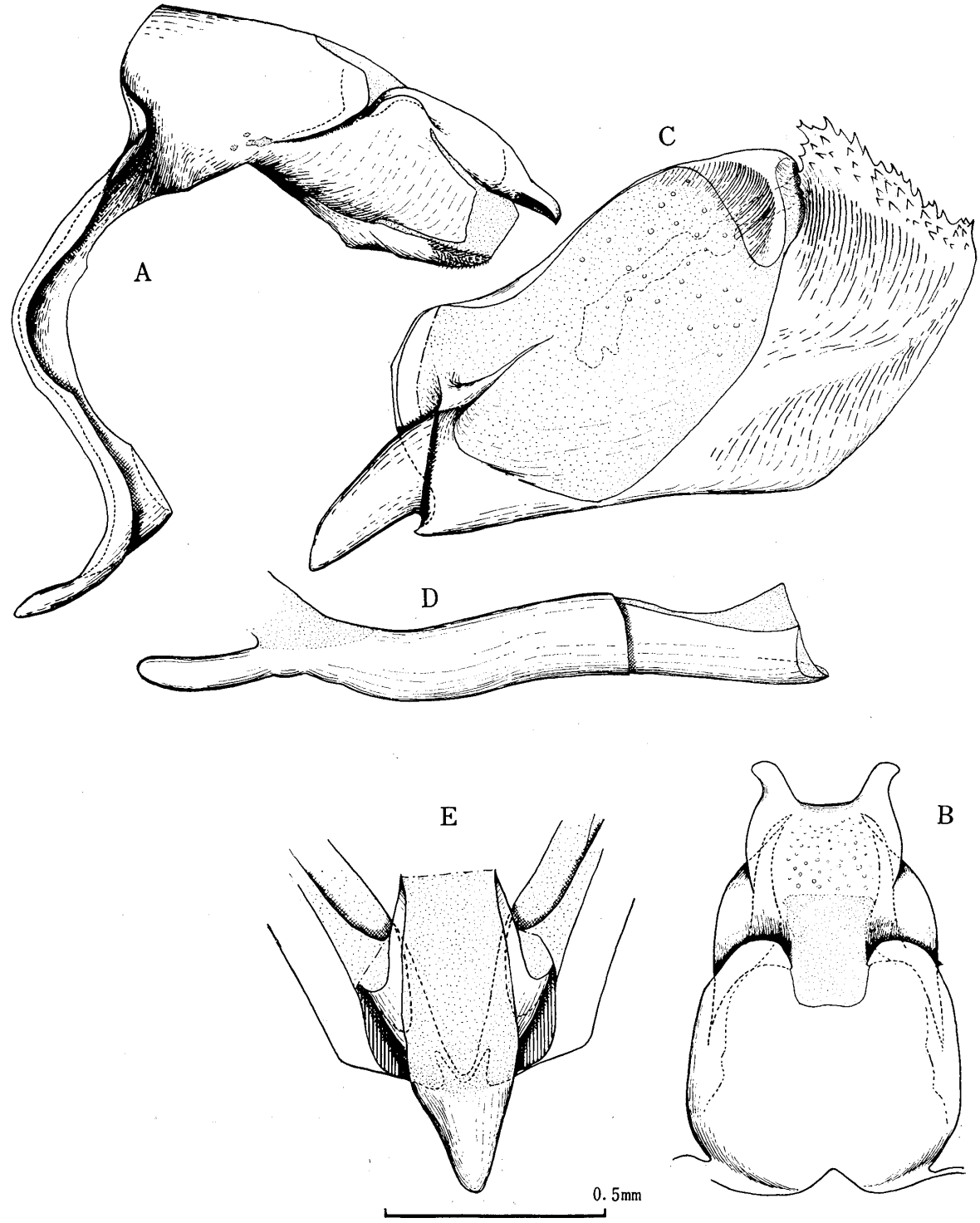

Fig. 20. Male genitalia of *Arnetta atkinsoni* (MOORE).
A: Lateral aspect of ring; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva, with juxta; D: Lateral aspect of phallus; E: Dorsal aspect of juxta.

short with blunt tip; sacculus short, triangular; harpe very large, nearly two-thirds as long as whole length of valva, more strongly produced dorsally than apically, having many strong denta-

tions on dorsal margin. Phallus moderately long and slender, subzonal portion nearly three-quarters as long as the whole length of phallus; coecum short but well developed; suprazonal portion membranous above, truncate and dilated at tip. Juxta peculiar, dorsal arms completely connected with sacculi, and apodemal portion strongly developed and extending above saccus.

This species is one of the easternmost representatives of the genus *Arnetta*, and its distributional range is confined to Indo-China Peninsula and the neighbourhood from Sikkim, Assam, through Burma, Tonkin and Siam.

28. ***Ampittia dioscorides camertes*** (Hewitson, 1868) (Figs. 69–70 ♂, 71–72 ♀)

Specimens examined: 1 ♂, Vo Dat, 17-Oct.-1959; 1 ♂ 1 ♀, Kontum, 17-Sep.-1962; 1 ♂, Pleiku, 18-Sep.-1962.

The male genitalia of this species are already described by Shirôzu and Saigusa (1962). According to Evans (1949), it is divided into 4 subspecies, and is distributed from Ceylon, South and East India, Burma, Tonkin, through South China and Malay Peninsula to Formosa, Borneo and Java.

29. ***Aeromachus dubius impha*** Evans, 1949 (Figs. 75–76 ♂, 77–78 ♀; Textfig. 21, ♂ genitalia)

Specimens examined: 1 ♂, K-241 (bet. Djiring and Dalat), 5-May-1962; 2 ♀ ♀, Dalat, 29-July-1962; 1 ♂, Kontum, 17-Sep.-1962.

Antennal club only slightly bent beyond the thickest part. Wing broad, termen of forewing rounded (in the nominate subspecies from Ceylon, the male forewing has straight termen and pointed apex). Upperside almost unicolored brown, with a minute yellowish stripe at the middle of vein 1b of forewing in the male. Underside brown, sparsely covered with olive scales; with rather indistinct discal and submarginal bands which may be sharply defined in some specimens.

Male genitalia: Dorsum large; tegumen broad with very large lateral expansions which cover sclerotized fenestrula and basal portion of scaphium; small membranous area appearing dorsomedian portion of dorsum; scaphium broad, its distal margin weakly rounded with a pair of lateral swellings; saccus moderate. Valvae moderately large, almost of the same width throughout; costa very narrow; ampulla short, slightly produced; harpe large, nearly two-thirds as long as valva, with dorsal margin projecting above beyond the level of ampulla and furnished with many serrations irregularly arranged; sacculus short but rather broad. Phallus long, subzonal portion more than twice as long as suprazonal one, having a long coecum; suprazonal portion of aedeagus short with a dorsal membranous area. Juxta lamellate, furnished with a pair of narrow sclerites posteriorly.

This species seems to be a common butterfly in Southeast Asia, and its range spread over Indo-China, Malaya and Java. According to Evans (1949), it is separated into 3 subspecies.

30. ***Aeromachus cognatus*** **sp. nov.** (Figs. 79–80 ♂; Textfig. 22, ♂ genitalia)

Closely resembling *A. dubius* Elwes & Edwards, 1897.

Male. Forewing triangular in shape as in *A. dubius dubius*, with straight costa and termen, pointed apex; hindwing rounded terminally, but somewhat produced at tornus.

Upperside dark brown; hindwing becoming somewhat paler apically; marking much obscure, only a short pale streak distinctly appearing at the middle of forewing vein 1b as in *A. dubius* and *A. jhora*.

Underside paler in ground colour, mostly covered with olive-yellow scales except on the

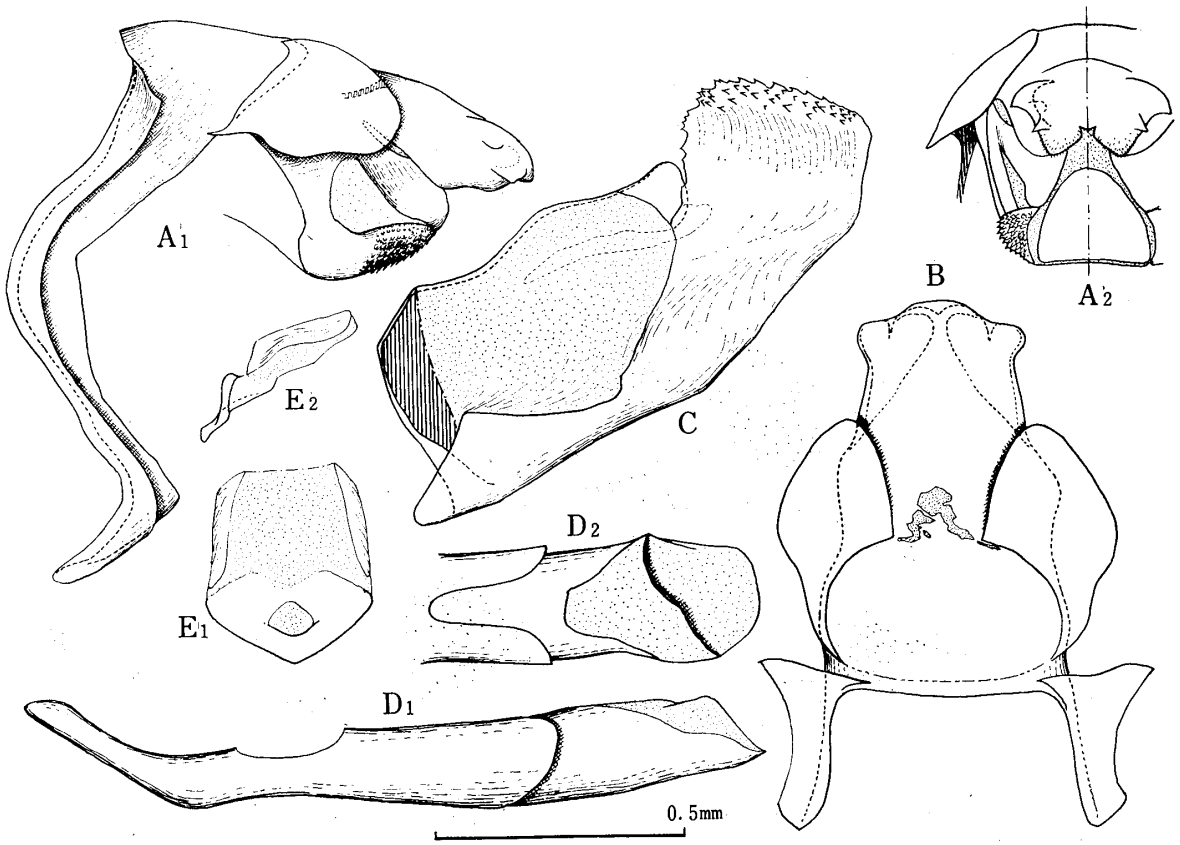

Fig. 21. Male genitalia of *Aeromachus dubius impha* EVANS.

A_1: Leteral aspect of ring; A_2 : Posterior aspect of dorsum; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva; D_1: Lateral aspect of phallus; D_2: Dorsal aspect of apical portion, of phallus; E_1: Dorsal aspect of juxta; E_2: Lateral aspect of juxta.

basal and inner areas of forewing which are conspicuously dark. Forewing with a row of indistinct pale yellowish discal spots not extending to space 1b, and with a diffused submarginal band. Hindwing: discal row of rather whitish spots irregular but sharply defined, and variable in breadth in some specimens; submarginal row of pale yellowish spots rather diffused, dislocated at vein 2, and with the most tornal spot largest and conspicuous; marginal pale yellow line extremely narrow, somewhat braoder towards tornus; veins between submarginal spots and marginal line more or less paler than ground; cilia long, pale greyish brown, though being darker basally, and chequered, dark brown at end of each vein.

Male genitalia: Closely resembling those of *dubius* but slightly different in the following respects:

1) Scaphium viewed from above broader, slightly dilating apically; its apical margin with a pair of small notches near the lateral corners. In *dubius* scaphium narrower and weakly constricted preapically, its apical margin without lateral notches.

2) Valvae somewhat constricted subbasally, with ventral margin rather strongly convex, therefore valvae are broadest at the middle, while in *dubius* valvae subequal in width throughout, and

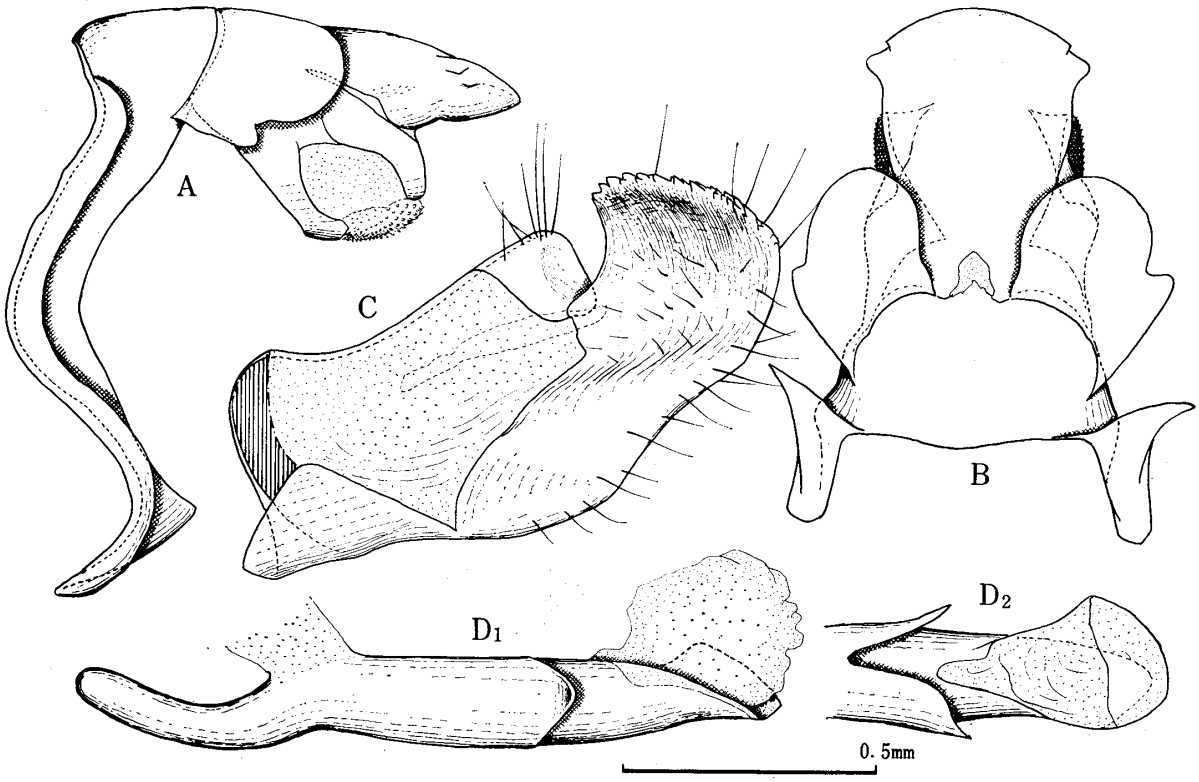

Fig. 22. Male genitalia of *Aeromachus cognatus* INOUÉ & KAWAZOÉ, sp. nov.
A: Lateral aspect of ring; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva; D_1: Lateral aspect of phallus; D_2: Dorsal aspect of apical portion of phallus.

with the ventral margin rather straight. Harpe in *cognatus* with dorsal margin not so highly produced dorsally beyond the level of ampulla as in *dubius*, but there the serrations more regularly arranged.

Length of forewing: 11–12 mm.

Distribution: South Vietnam.

Holotype: ♂, Dalat, 29-July-1962.

Paratypes: 1♂, Trang Bom, 14-May-1961; 1♂, Blao, 16-July-1961; 1♂, Bobla, 5-May-1962.

All the type-specimens are now in the senior author's collection.

This new species is closely allied to *A. dubius* ELWES & EDWARDS, 1897 and *A. jhora* DE NICÉVILLE, 1885, but is different from *dubius* in the antennal club which bends at the preapical portion, and in the male genitalia as mentioned above; from *jhora* it is distinguished in the smaller wing-size, the obscure marking of upperside of forewing, and in the male genitalia, of which the scaphium is broader in *jhora*, and its flat end centrally indented.

31. ***Aeromachus pygmaeus*** (FABRICIUS, 1775) (Figs. 81–82♂; Textfig. 23, ♂ genitalia)

Specimen examined: 1♂, Dalat, 29-July-1962.

This is the smallest species of the genus *Aeromachus*. The length of forewing is 8.5 mm in

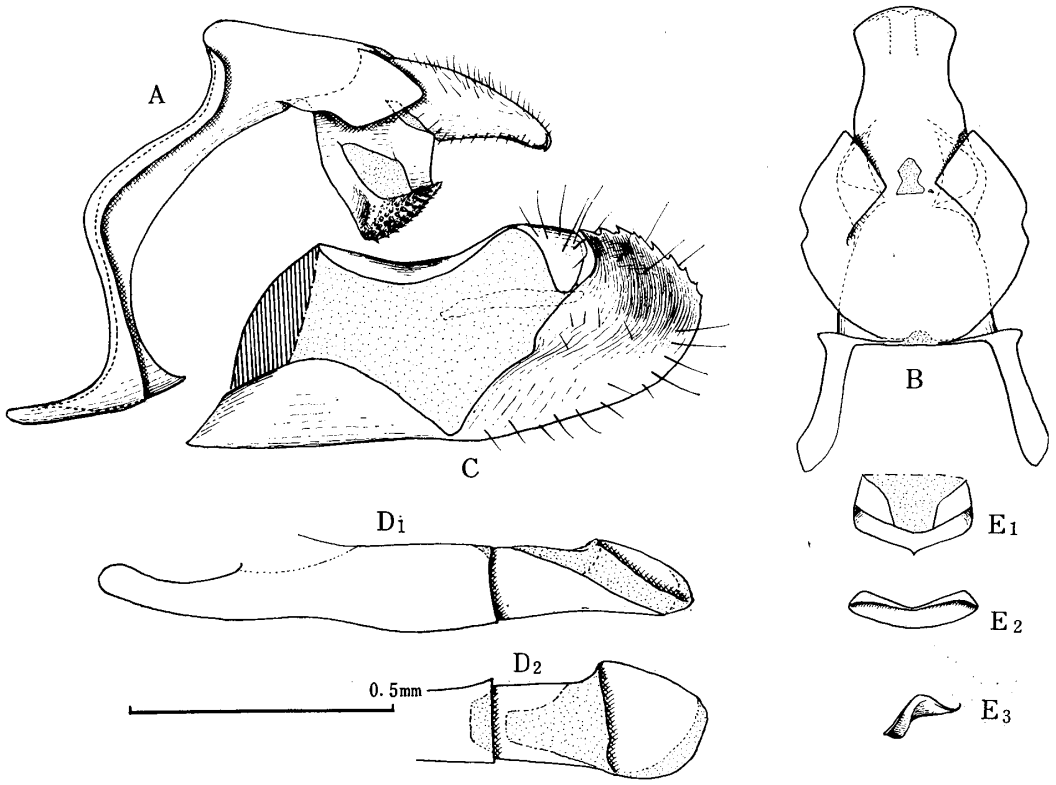

Fig. 23. Male genitalia of *Aeromachus pygmaeus* (FABRICIUS).
A: Lateral aspect of ring; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva; D_1: Lateral aspect of phallus; D_2: Dorsal aspect of apical portion of phallus; E_1: Dorsal aspect of juxta; E_2: Posterior aspect of juxta; E_3: Lateral aspect of juxta.

the single male specimen before us.

Male upperside uniformly greyish brown, paler than in the preceding two species, without any sexual character. Underside brownish grey, a pale band hardly visible on discal area of forewing. Antennae characteristic, very short, less than half of forewing costa, having the bluntly-ended apiculus.

Male genitalia: Closely resembling those of the preceding two species, but slightly different in the following respects:

1) In lateral aspect, posterior margin of the lateral expansions of tegumen angularly pointed as in *A. inachus* MÉNÉTRIÈS, 1859, not rounded.

2) In dorsal aspect, dorsum narrower, with scaphium much tapered and slightly constricted at one-third from the tip, then somewhat dilated apically, and ending in evenly rounded distal margin which has neither incisions nor weak swellings at its lateral corners.

3) Valvae distally rounded, dorsal serrations of harpe rather sparse; sacculus large, nearly half as long as valva.

This species inhabits South India, Assam, Burma, Siam to Malaya.

32. ***Sovia albipectus*** (DE NICÉVILLE, 1891) (Figs. 83-84, ♂; Textfig. 24, ♂ genitalia)

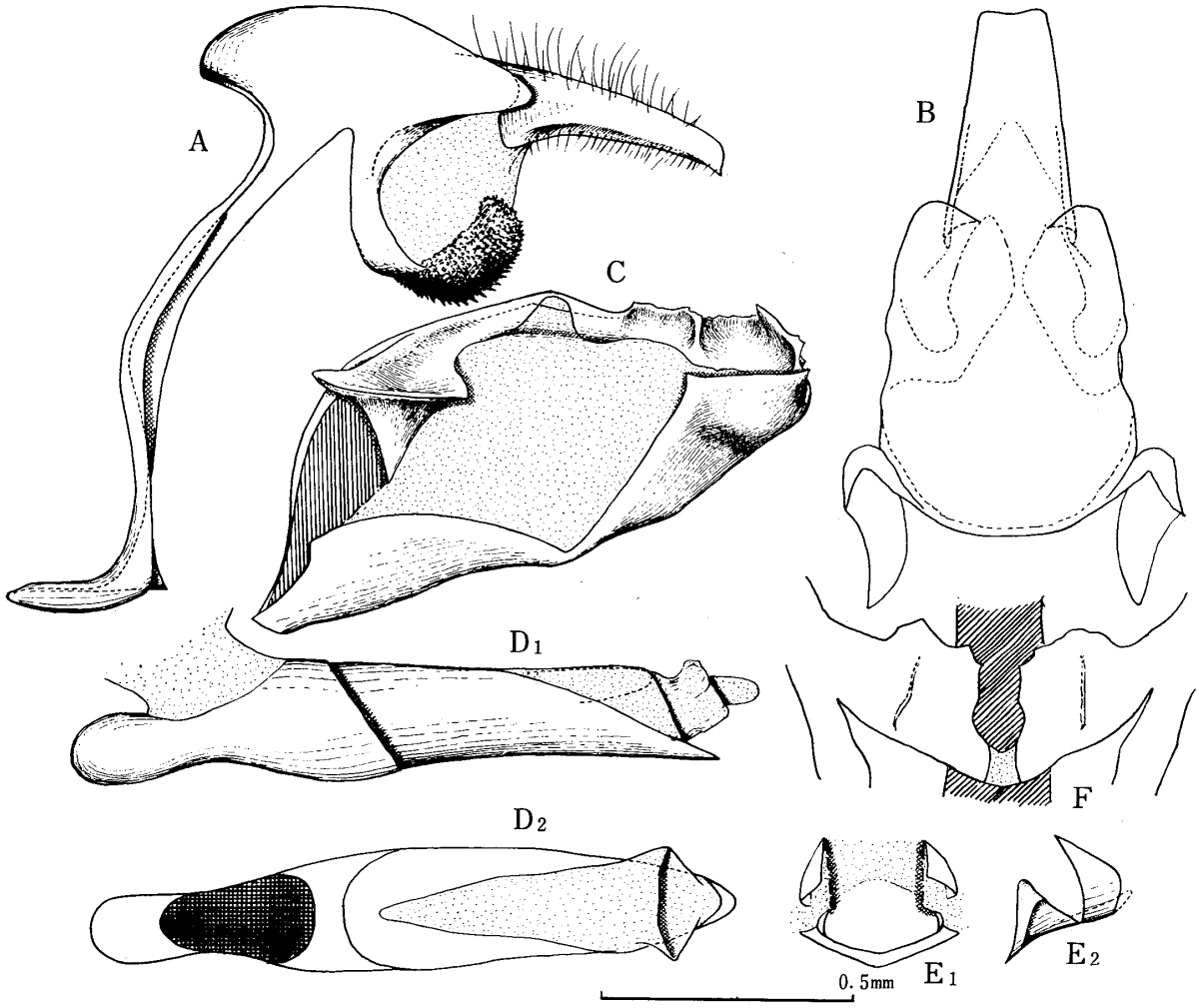

Fig. 24. Male genitalia of *Sovia albipectus* (DE NICÉVILLE).
A: Lateral aspect of ring; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva; D_1: Lateral aspect of phallus; D_2: Dorsal aspect of phallus; E_1: Dorsal aspect of juxta; E_2: Lateral aspect of juxta; F: Dorsal aspect of dorso-proximal portion of valvae.

Specimens examined: 1♂, Thu Duc, 26-May-1960; 1♂, Trang Bom, 2-July-1961; 1♂, Trang Bom, 5-Nov.-1961; 1♂, Dinh Quan, 25-Feb.-1962; 1♂, Trang Bom, 17-May-1962.

A small species, length of forewing 11–12.5 mm in the male specimens before us.

Upperside dark brown; forewing with 3 apical, 2 discal and 2 cell spots; hindwing without white spots but with a faint submarginal pale band. Male sexual stigma consisting of two sleek dots in space 1b.

Underside variable, dark brown in ground colour, deeper in the wet-season form; veins paler throughout. Forewing with the hyaline spots as on upperside, in addition a submarginal pale line and a double, but often confluent, dorsal pale streak in space 1b beyond the sexual stigma. Hind-

wing basal area densely covered with pale scales which are yellowish in the dry-season form; discal area with a dot in each space except for spaces 4-5, where the black ground looks like an elongate large spot at a glance; submarginal area with whitish dots, which are clearer and sharply defined in the wet-season form; marginal area narrowly paler.

Male genitalia: Dorsum more or less flattened, anterior margin of tegumen weakly produced fowards, postero-lateral expansions of tegumen rather small; sclerotized fenestrula short, bearing no membranous area; scaphium with a long, flattened uncal process, which is slightly shorter than tegumen, and is gradually tapered apically to a truncate apex; gnathos paired laterally, well producing ventrally, the apex densely aculeate and dorsally sprung up forming a distinct cochlear; vinculum narrow; saccus rather short. Valvae broad, tapered on apical half; costa well developed, subequal in length to ampulla, projecting a dilated transtilla bearing a triangular lobule below; sacculus large, longer than half of valva; ampulla furnished with some teeth on apical half; harpe narrow, not forming a large lamellate process, but having a large tooth inwardly at the apex; inner wall of apical portion of valva forming a hollow surrounded by the ampullar and the harpal teeth. Phallus moderately long and rather stout, coecum short, zone oblique, subzonal sheath shorter than suprazonal one, which is broadly membranous above almost for its full length, the ventrodistal extremity of aedeagus short produced. Juxta small, lamellate, with a pair of triangular sclerites postero-laterally.

The range of this species is confined to Indo-China Peninsula from Burma, including Shan and Karens, to Siam.

33. ***Thoressa masoni*** (Moore, 1878) (Figs. 85-86, ♂; Textfig. 25, ♂ genitalia)

Specimens examined: 1♂, Trang Bom, 22-Mar.-1961; 1♂, Trang Bom, 10-Sep.-1961; 1♂, Trang Bom, 9-Jan.-1962; 1♂, Dinh Quan, 25-Mar.-1962; 1♂, Trang Bom, 5-Aug.-1962; 1♂, Kontum, 17-Sep.-1962.

Upperside brown with the following yellow markings: forewing with a paired opaque spot in space 1b (the lower spot is narrow and oblique, individually absent), hyaline spots in spaces 2, 3, 6, 7, 8 (may be absent) as well as a double cell spot hyaline; hindwing with a rather sharply defined discal spot and a diffused pale central area consisting of yellowish hairs below the spot. The cilia yellow.

Underside paler; forewing dark brown, except for ochreous costa and pale yellow apical area, and spotted as upperside; hindwing ochreous, marginal area darker, and with dark brownish discal spots in spaces 1b to 7 and a spot at base of space 7.

Male genitalia: Tegumen broad, rather quadrate in dorsal aspect, with the lateral extensions small but pointed; sclerotized fenestrula partly overlapped by the expansions of tegumen, with a small membranous area at the middle of its connected portion of tegumen; scaphium nearly as long as tegumen, with a broad uncus which is slightly constricted subbasally and preapically, weakly bilobed at the apex; gnathos separated laterally, well developed; each lateral sclerite with the basal portion broadly conglutinated with tegumen and sclerotized fenestrula, and with the apex forming a strongly denticulate cochlear; vinculum narrow, saccus moderately developed. Valvae large; costa with a densely denticulate projection towards manica, forming a strong transtilla; ampulla very short, somewhat producing inwards; harpe large, the apical margin rounded, the dorsal

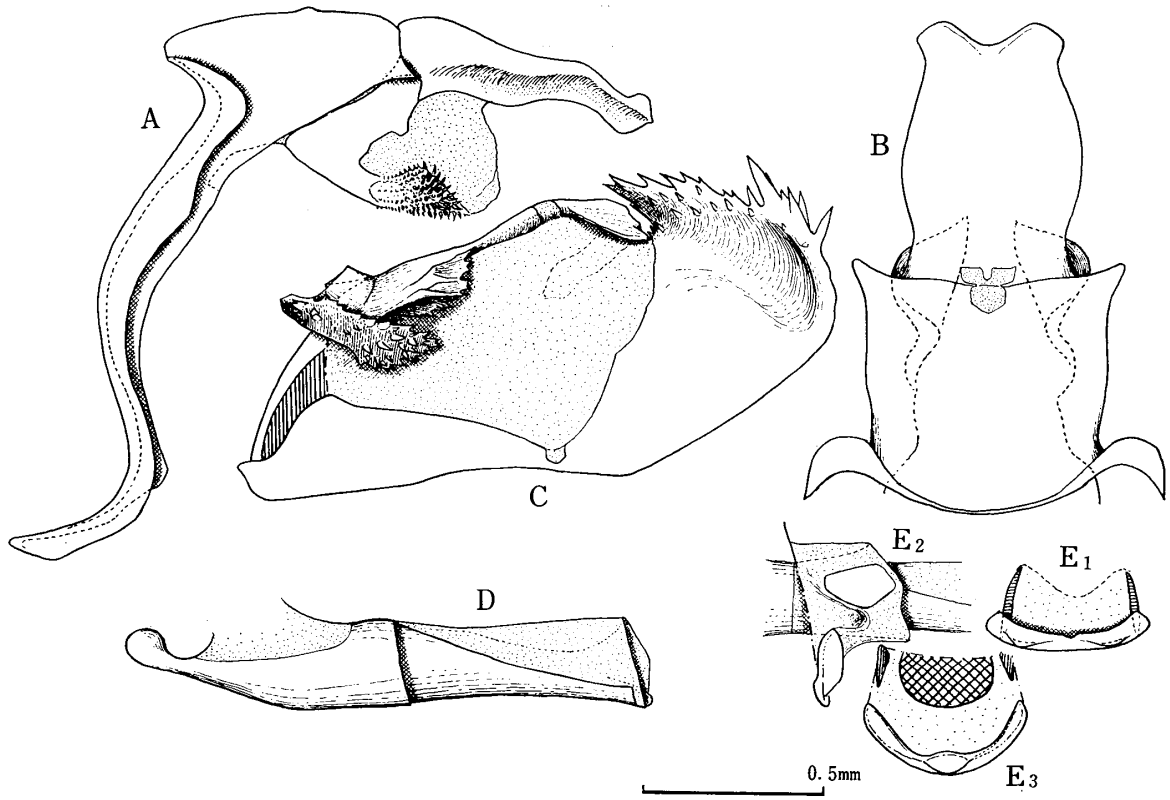

Fig. 25. Male genitalia of *Thoressa masoni* (Moore).
A: Lateral aspect of ring; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva; D: Lateral aspect of phallus; E_1: Dorsal aspect of juxta; E_2: Lateral aspect of juxta; E_3: Posterior aspect of juxta.

margin strongly dentate; sacculus well sclerotized, triangular, subequal to harpe in length. Phallus moderately long and stout; zone at the middle, coecum short; suprazonal portion of aedeagus with a broad membranous area on its dorsal side throughout, apex of aedeagus truncate. Juxta small, of circular arc, with a pair of lateral sclerites on anellus.

This species is distributed from easternmost India (Manipur), Burma, Siam to Indo-China.

34. ***Halpe zema ormenes*** (Plötz, 1886) (Fig. 87, ♀)

Specimens examined: 1♀, Banmethuot, 3-Jan.-1961; 1♀, Trang Bom, 24-Dec.-1961.

Shirôzu and Saigusa (1962) already described and illustrated the male genitalia of this species based upon the specimen from Thailand.

35. ***Halpe porus*** (Mabille, 1876) (Fig. 88, ♂; Textfig. 26, ♂ genitalia)

Specimens examined: 1♂, Phu Lam (Cholon), Jan.-1959; 1♂, Dong Xoai, 13-May-1960; 1♀, Thu Duc, 26-May-1960; 1♂, Dinh Quan, 3-July-1960; 1♂, Trang Bom, 17-July-1960; 1♂, Trang Bom, 21-Aug.-1960; 1♂, Trang Bom, 9-July-1961; 2♂♂, Ba Diem, 29-Apr.-1962; 1♂, Trang Bom, 12-Aug.-1962.

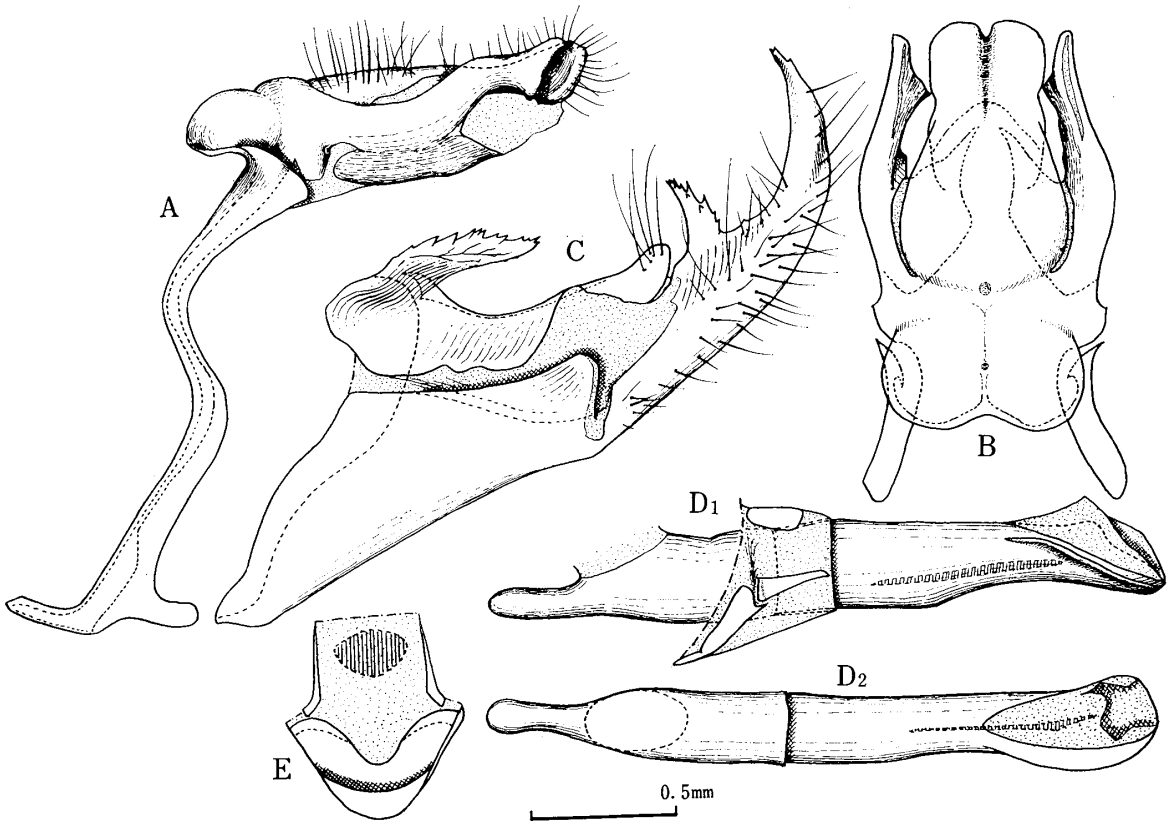

Fig. 26. Male genitalia of *Halpe porus* (MABILLE).
A: Lateral aspect of ring; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva; D_1: Lateral aspect of phallus, with juxta; D_2: Dorsal aspect of phallus; E: Ventral aspect of juxta.

In his paper on the butterflies of Thailand, KAWAZOÉ (1964) already gave the detailed descriptions of the male genitalia. In this paper it is more precisely illustrated.

c) *Ancistroides* Group.

The following genera belong to the much homogeneous *Ancistroides* Group, whose species have broad wings, unmarked or white- or red-banded forewings, and basally decurved vein 5 of hindwings. The following species have the common characters of the male genitalia stated below.

1) Tegumen more or less projecting posteriorly at the dorsomedian portion; the border between tegumen and sclerotized fenestrula easily traceable, often represented by the narrow membranous areas, or the membranous incision from lateral margin of dorsum.

2) Gnathos well developed, its distal portion not thickened at cochlear, of which the elongate extremity is proclinate.

3) Anterior reflexed margin of ring narrow.

4) Valva broad and simple; ampulla rather weakly developed; harpe large and broad, with serration on dorsal margin, which is often separated into two processes.

5) Apex of aedeagus with rather wide, oblique peri-vesical area, and aedeagus often carinate in various degree near its tip.

6) Juxta large and lamellate, U- or V-shaped, with a pair of short apodemal processes basally.

The *Ancistroides* Group is represented by 9 species in our collection, of which 8 species are already recorded by EVANS (1949) from Vietnam, and six species by MÉTAYE (1957).

36. ***Iambrix salsala salsala*** (MOORE, 1865) (Fig. 89, ♀)

Specimens examined: 1♂, Phan Tho, 24-July-1959; 1♂, Vo Dat, 11-Oct.-1959; 1♂, Vo Dat, 17-Oct.-1959; 1♂, Trang Bom, 17-July-1960; 1♂, Trang Bom, 9-Sep.-1960; 3♂♂ 1♀, Trang Bom, 16-Oct.-1960; 2♂♂ 1♀, Trang Bom, 18-Dec.-1960; 1♂, Trang Bom, 12-Feb.-1961; 1♀, Trang Bom, 2-July-1961; 1♀, Trang Bom, 8-Oct.-1961; 1♂, Trang Bom, 29-Oct.-1961; 1♂, Trang Bom, 5-Nov.-1961; 3♂♂, Trang Bom, 2-Jan.-1962; 1♂, Ba Diem, 3-Jan.-1962; 1♀, Trang Bom, 10-Jan.-1962; 2♂♂ 1♀, Trang Bom, 14-Feb.-1962; 1♂, Trang Bom, 2-Feb.-1962; 1♀, Trang Bom, 4-Feb.-1962; 1♂, Lai Thieu, 18-Mar.-1962; 1♂, Trang Bom, 29-Apr.-1962; 1♂, Trang Bom, 11-May-1962; 1♂, Trang Bom, 8-July-1962; 1♂ 3♀♀, Trang Bom, 5-Aug.-1962; 3♂♂ 1♀, Col de Blao, 26-Aug.-1962; 1♂ 1♀, Trang Bom, 2-Sep.-1962; 1♀, Trang Bom, 9-Sep.-1962; 1♂, Col de Blao, 10-Sep.-1962; 1♀, Banmethuot, 16-Sep.-1962.

This species seems to be one of the commonest skippers, and widely ranges from South India to Borneo and Java through Indo-China. The male genitalia of this species were already described from the specimens of Thailand by SHIRÔZU and SAIGUSA (1962) and KAWAZOÉ (1964).

37. ***Koruthaialos butleri*** (DE NICÉVILLE, 1865) (Figs. 91-92, ♀)

Specimen examined: 1♀, Banmethuot, 15-Sep.-1962.

This species is unique for the genus *Koruthaialos* in having no oblique red band on forewing.

The upperside of the female brown, forewing discal area inconspicuously reddish, the underside ferruginous brown as in *K. rubecula*, but the dorsal area of forewing paler and strongly tinged yellowish towards tornus.

This species is distributed from Sikkim, Assam, Burma to Malaya.

38. ***Koruthaialos sindu sindu*** (FELDER, 1860) (Figs. 93-94, ♂; Textfig. 27, ♂ genitalia)

Specimens examined: 1♂, Dinh Quan, 26-Aug.-1962; 1♂, Dinh Quan, 7-Oct.-1962.

This species is very closely related to *K. rubecula* (PLÖTZ), and separable in the following respects. The detailed descriptions of wing markings and the male genitalia of the latter species are given by KAWAZOÉ based upon the specimens from Thailand.

1) The band on underside of forewing almost of equal width throughout, with undulate inner margin in *sindu*, while it being tapered posteriorly, and its inner margin straight in *rubecula*.

2) Ground colour of underside darker in *sindu*, while paler and ferruginous in *rubecula*.

3) The male of *Koruthaialos* has a groove at the basal portion of discoidal cell on underside of forewings; in *sindu* this groove extending apically beyond the base of vein 11, and filled with shining scales, while in *rubecula* it short and without specialized scales.

4) Third segment of palpi short and stout in *sindu*, though long and slender in *rubecula*.

5) The male genitalia fairly different: in *sindu* tegumen with an elongate postmedial process, scaphium with divergent unci, saccus short, apical margin of valva rather truncate, phallus stout,

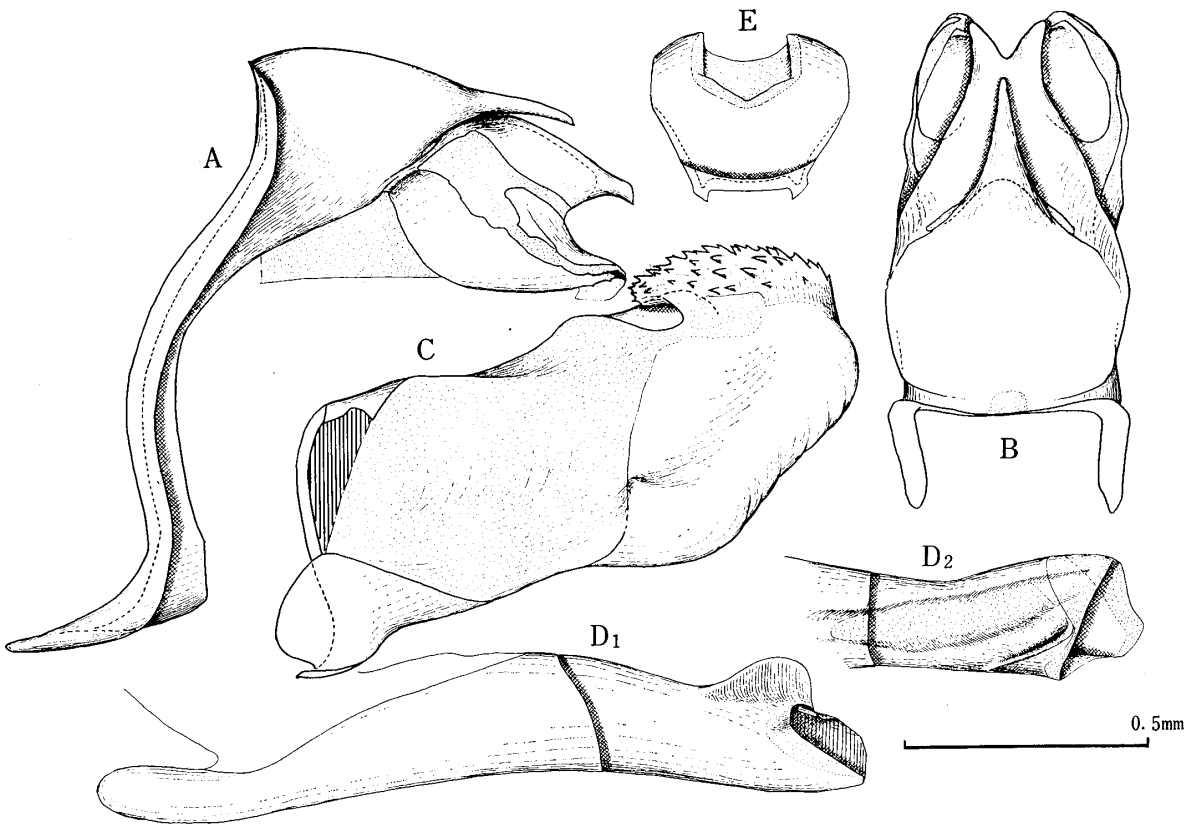

Fig. 27. Male genitalia of *Karuthaialos sindu sindu* (FELDER).
A: Lateral aspect of ring; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva; D_1: Lateral aspect of phallus; D_2: Dorsal aspect of apical portion of phallus; E: Posterior aspect of juxta.

dorsal membranous area of aedeagus confined to apical portion, dorsal carina penis not contiguous into vesical sclerite, and juxta rather U-shaped; in *rubecula* tegumen devoid of the posteromedial process, scaphium with unci convergent, saccus much elongate, apical margin of valva evenly rounded, phallus slender, aedeagus with long dorsal membranous area for its all length, dorsal carina penis prolonged into vesica, juxta H-shaped.

This species is distributed from Assam and Burma to Borneo, Sumatra and Java, through Indo-China, and it is separated into 6 subspecies.

39. ***Sankus fuligo fuligo*** (MABILLE, 1876) (Figs. 95-96, ♂; Textfig. 28, ♂ genitalia)

Specimens examined: 1♂, Vo Dat, 17-Oct.-1959; 2♂♂, Trang Bom, 4-Dec.-1960; 2♂♂ 1♀, Ben Nom, 26-Feb.-1961; 1♂, Trang Bom, 15-July-1962; 1♂, Banmethuot, 16-Sep.-1962.

The male of this rather plain brown species has an oval brand under the base of vein 2 on forewing below.

Male genitalia: In general structure almost identical with those of the *Koruthaialos*-species. Dorsum rather small, tegumen with posterior portion bluntly produced at the middle, scaphium

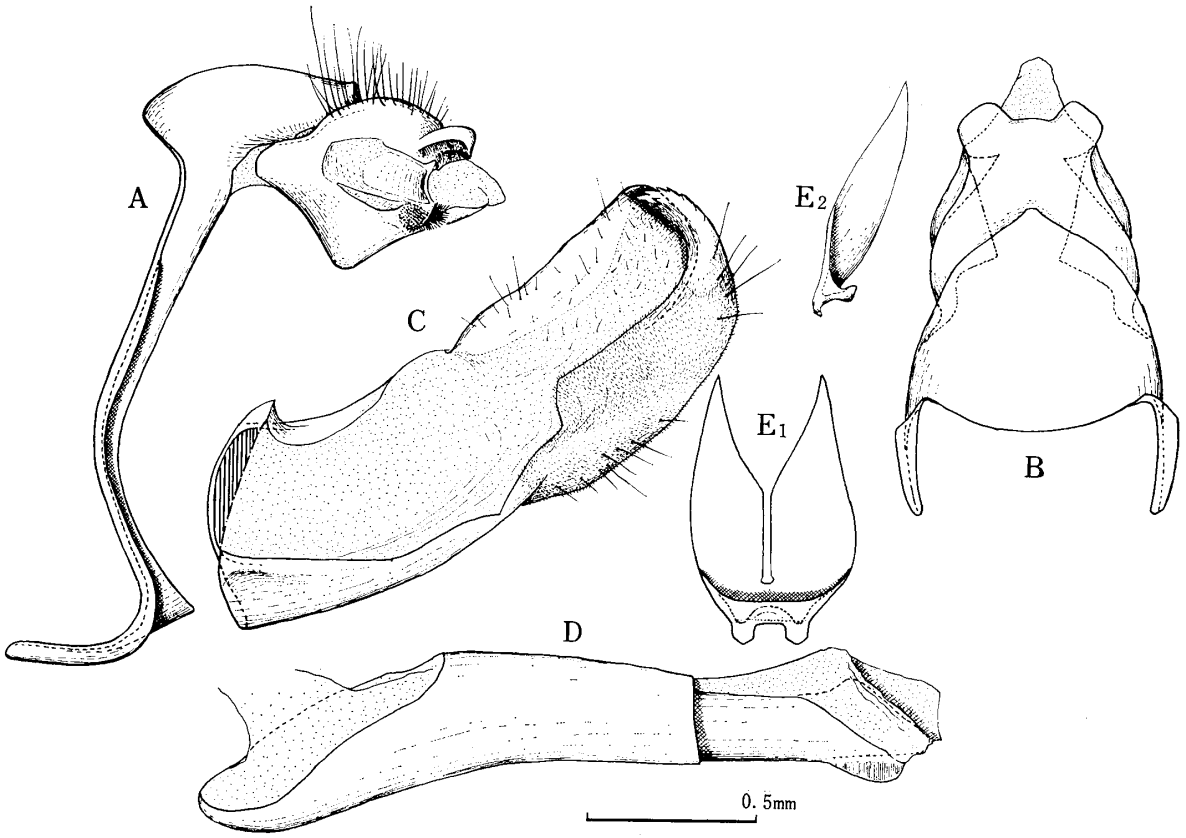

Fig. 28. Male genitalia of *Sankus fuligo fuligo* (MABILLE).
A: Lateral aspect of ring; B: Dorsal aspect of dorsum; C: Inner aspect of right-hand valva; D: Lateral aspect of phallus; E_1: Posterior aspect of juxta; E_2: Lateral aspect of juxta.

with a pair of blunt uncal process; gnathal elbow strongly angled ventrally at the middle; the area between scaphium and gnathos well sclerotized. Valvae long and rather narrow, subequal in width throughout, gently bending upwards as a whole; costa shorter than ampulla, its base upturned; ampulla large and broad, the distal one-third portion freely produced to rounded apex; harpe longer than half of valva, its apical portion tapering to tip which is upcurved, dentate, but does not reach the dorsal margin of ampulla. Phallus long and stout, with coecum reduced; subzonal portion nearly twice as long as suprazonal portion of aedeagus, which is broadly membranous on the dorsal area; apex of aedeagus beneath with a carina; vesical opening oblique. Juxta U-shaped with a pair of apodemal processes at the base, lateral branches broad, much tapering apically at the distal half.

40. ***Ancistroides nigrita maura*** (SNELLEN, 1880) (Fig. 90, ♂)

Specimens examined: 1♂, Phu Lam, Jan.-1959; 1♂, Trang Bom, 18-Jun.-1961; 1♂, Djiring, 30-July-1961; 1♂, Col de Blao, 26-Aug.-1962; 2♂♂ 1♀, Trang Bom, 2-Sep.-1962; 1♂, 2-Sep.-

1962; 1♂, Banmethuot, 16-Sept.-1962; 1♂, Col de Blao, 7-Oct.-1962.

Shirôzu and Saigusa (1962) reported this species from Thailand with the descriptions of the male genitalia, and Kawazoé (1964) also did.

Explanation of Plates

Fig. 65. *Astictopterus jama olivascens* Moore, ♂.
Fig. 66. ditto, underside.
Fig. 67. *Astictopterus jama olivascens* Moore, ♀.
Fig. 68. ditto, underside.
Fig. 69. *Ampittia dioscorides camertes* (Hewitson), ♂.
Fig. 70. ditto, underside.
Fig. 71. *Ampittia dioscorides camertes* (Hewitson), ♀.
Fig. 72. ditto, underside.
Fig. 73. *Arnetta atkinsoni* (Moore), ♂.
Fig. 74. ditto, underside.
Fig. 75. *Aeromachus dubius impha* (Evans), ♂.
Fig. 76. ditto, underside.
Fig. 77. *Aeromachus dubius impha* Evans, ♀.
Fig. 78. ditto, underside.
Fig. 79. *Aeromachus cognatus* Inoué & Kawazoé, ♂.
Fig. 80. ditto, underside.
Fig. 81. *Aeromachus pygmaeus* (Fabricius), ♂.
Fig. 82. ditto, underside.
Fig. 83. *Sovia albipectus* (de Nicéville), ♂.
Fig. 84. ditto, underside.
Fig. 85. *Thoressa masoni* (Moore), ♂.
Fig. 86. ditto, underside.
Fig. 87. *Halpe zema ormenes* (Plötz), ♀, underside.
Fig. 88. *Halpe porus* (Mabille), ♂, underside.
Fig. 89. *Iambrix salsala salsala* (Moore), ♀, underside.
Fig. 90. *Ancistroides nigrita maura* (Snellen), ♂.
Fig. 91. *Koruthaialos butleri* (de Nicéville), ♀.
Fig. 92. ditto, underside.
Fig. 93. *Koruthaialos sindu sindu* (Felder), ♂.
Fig. 94. ditto, underside.
Fig. 95. *Sankus fuligo fuligo* (Mabille), ♂.
Fig. 96. ditto, underside.